

## Keynote Lecture

# The contribution of Primary Progressive Aphasia to language neurobiology

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### Outline

The primary progressive aphasia (PPA) are clinical syndromes characterised by progressive language dysfunction, reflecting an (initially) selective degeneration of the brain language networks due to a variety of neuropathological mechanisms.

The enormous research interest in PPA, testified by the impressive increase in number of publications during the last decade, can be attributed to several reasons:

- the detailed analysis of spared/impaired aspects of language dysfunction in PPA provides a model of progressive and selective impairment, complementary to the evidence coming from aphasia due to stroke, which, in contrast, is characterised by the sudden onset of language impairment and by possible recovery

- at the neurological level, the PPA syndromes are characterised, at least in the early to moderate stages, by selective patterns of involvement of grey and white matter, which are generally consistent at the single subject level, and can be explored in vivo by multiple structural and functional imaging methods, allowing insights into brain segregation and integration of the neurological mechanisms of language function. The study of PPA syndromes is providing important insights into multiple aspects of language neurobiology. In particular, patients living with the semantic variant have crucially contributed to the understanding of the brain organization of semantic knowledge. The non fluent/agrammatic variant offers a window into the brain mechanism of speech production and syntactic processing. The logopenic/phonological variant is specially informative about the relation of other cognitive functions, such as short-term memory, with language performance. Recent development in this field of study are based on the promising application of AI methods to the important issue of rehabilitation and to the development of cross-linguistic investigations.